FACULTY OF PHARMACY – ZAGAZIG UNIVERSITY

Diploma in clinical pharmacy

Program Specification

(2017 - 2018)

A. Basic Information:

1. Program Title: Diploma in clinical pharmacy

2. Program Type: Credit hours program (1 year, 30 CU)

3. Faculty / University: Faculty of Pharmacy, Zagazig University.

4. Department (s):

The program is under the supervision of vice dean for postgraduate affairs and scientific research.

5. Coordinators:

Prof. Hanan El Nahas (Vice dean for postgraduate affairs and scientific research)

Prof. Salah Ghareeb (Diploma coordinator)

6. Date of Program specification approval: Program specification was approved by Clinical Pharmacy Diploma committee in October 2018

7. External Evaluator: Prof. Gamal El-Magharabi

(Faculty of Pharmacy – Tanta University)

8. Internal Evaluator: Prof. Sahar ElSweefy (Head of Biochemistry department – Zagazig University)

B. Professional Information:

I- Program Aims

The faculty of Pharmacy, Zagazig University, Diploma in Clinical Pharmacy program is a one-year (30 CU) program that delivered for postgraduate students. The program combines coursework and research to build and extend students' knowledge of clinical pharmacy, so they can optimize patient care, wellness and treatment within complex health environments. The program offers several courses in pharmacotherapy and patient care, in addition to a supervised, structured research project on a topic relevant to clinical pharmacy. Program outcomes include: career advancement as a hospital pharmacist, introduction of new practices in community pharmacy as well as advanced pharmaceutical care and quality use of medicines.

The program aims are summarized as follows:

1. Provide the community with highly qualified and professionals with skills and ethical values based on National Academic Reference Standards (NARS).

2. Prepare pharmacists capable of providing high quality pharmaceutical care and being integral members of the health care team.

3. Nurture pharmacists with the advanced pharmaceutical care knowledge in areas related to clinical pharmacy practice including pharmacotherapy, pharmacokinetics, clinical biochemistry and hospital microbiology.

4. Develop communication, problem solving, decision making and research skills.

5. Develop self-learning attitude for continuous improvement of professional knowledge

II- Attributes of the Graduates

Upon completion of the program, the graduates will be able to:

1. Specify therapeutic goals based on identification of patients' needs.
2. Design an optimal individualized pharmacotherapy plan and a monitoring strategy.
3. Resolve different drug-therapy problems encountered in various healthcare settings.
4. Provide evidence-based drug information and education services to healthcare professionals and patients.
5. Respect Moral and ethical principles for professional practice in the area of specialty
6. Demonstrate effective communication, leadership, time management and team work skills
7. Become a life-long learner for continuous improvement of professional knowledge and skills.

III. Intended Learning Outcomes (ILO's):

A- Knowledge and Understanding

By the end of the program, graduates should demonstrate knowledge and understanding of the following outcomes:

A1 Enumerate the signs and symptoms of different neurologic, GIT, bone, eye, ear, pulmonary, dermatological and cardiovascular disorders.

A2 Identify the evidence based medicine for treating different diseases including psychiatry, neurologic, GIT, bone, eye, and ear, pulmonary, dermatological and cardiovascular disorders.

A3 Recognize the pharmacotherapy of some infectious diseases.

A4 State the principles of kidney function and blood disorders

A5 Describe the principles of tumor growth, diagnosis, staging and principles of chemotherapy

A6 Outline different patient laboratory data including electrolytes and minerals, heart, hematology, acid-base disorders, kidney function and rheumatic diseases.

A7 Identify different types of drug- drug interactions.

A8 Classify adverse drug reactions and management procedures.

A9 Explain the basic concepts of clinical pharmacokinetics including clearance, apparent volume of distribution, half-life, elimination rate constant

and compartmental model and their applications in therapeutic drug monitoring and dose modification.

A10 Outline different pharmaceutical services in hospital pharmacy

A11 Describe the guidelines for safe handling and dispensing of special classes of medicines such as hazardous drugs, vaccines, biopharmaceuticals,

A12 Outline infection control programs in different health care facilities

A13 Outline different types of anemia, causes, symptoms and management

A14 Interpret different cardiovascular evaluation tests including heart sounds, heart rate, electro cardiogram, exercise stress test and others

A15 Describe different causes, complications and management of metabolic syndrome and insulin resistance

A16 Outline different types of sterile solutions, pharmacopieal requirments for their compounding and sterilization methods

A17 List ethics and rules of scientific writing

B- Professional and Practical Skills

At the end of the program students will be able to:

B1 Individualize therapy for different patients.

B2 Detect Drug – drug & drug-food interactions

B3 Modify drug dosage in case of presence of drug interaction

B4 Design a self- patient monitoring system to ensure achievement of the desired therapeutic outcomes

B5 Perform an infection-control oriented risk assessment for all procedures undertaken in the hospital and for all categories of workers, including pregnant and immuno-compromised.

B6 Suggest the appropriate methods to prevent infections & promote health care.

B7 Choose the proper drug in various disease conditions based on knowledge of drug-drug interaction and adverse drug reactions.

B8 Analyze and integrate a wide range of information including both scientific and library based material in pharmacy practice.

B9 Monitor drug pharmacokinetic parameters for optimum dosing

B10 Conduct effective counselling sessions for other healthcare professionals and / or patients

B11 Perform different calculations related to pharmacokinetic parameters, preparation of large volume parentals and total parentral nutrition

C- Intellectual Skills

At the end of the program, the students will be able to:

C1 Select a therapeutic plan for treatment of general psychiatry, neurologic, GIT, bone, eye, and ear, pulmonary, dermatological and cardiovascular disorders as well as different cancer types.

C2 Select the best method for drug distribution in hospitals

C3 Interpret laboratory tests and clinical data for patients

C4 Manage drug therapy problems effectively

C5 Individualize dosage regimens for specific patient Condition

C6 Identify different drug related problems and medication errors

C7 Evaluate goals, measurable objectives, and action plans for an infection control program

C8 Identify different incompatibilities encountered during compounding of large volume parentals and total parentral nutrition

C9 Interpret different drug pharmacokinetic parameter

C10 Prepare a scientific report about a specific topic

D- General and Transferable Skills

At the end of the programme students will be able to:

D1 Communicate effectively in an oral and a written way

D2 Work effectively in team

D3 Retrieve information from different sources to improve professional abilities..

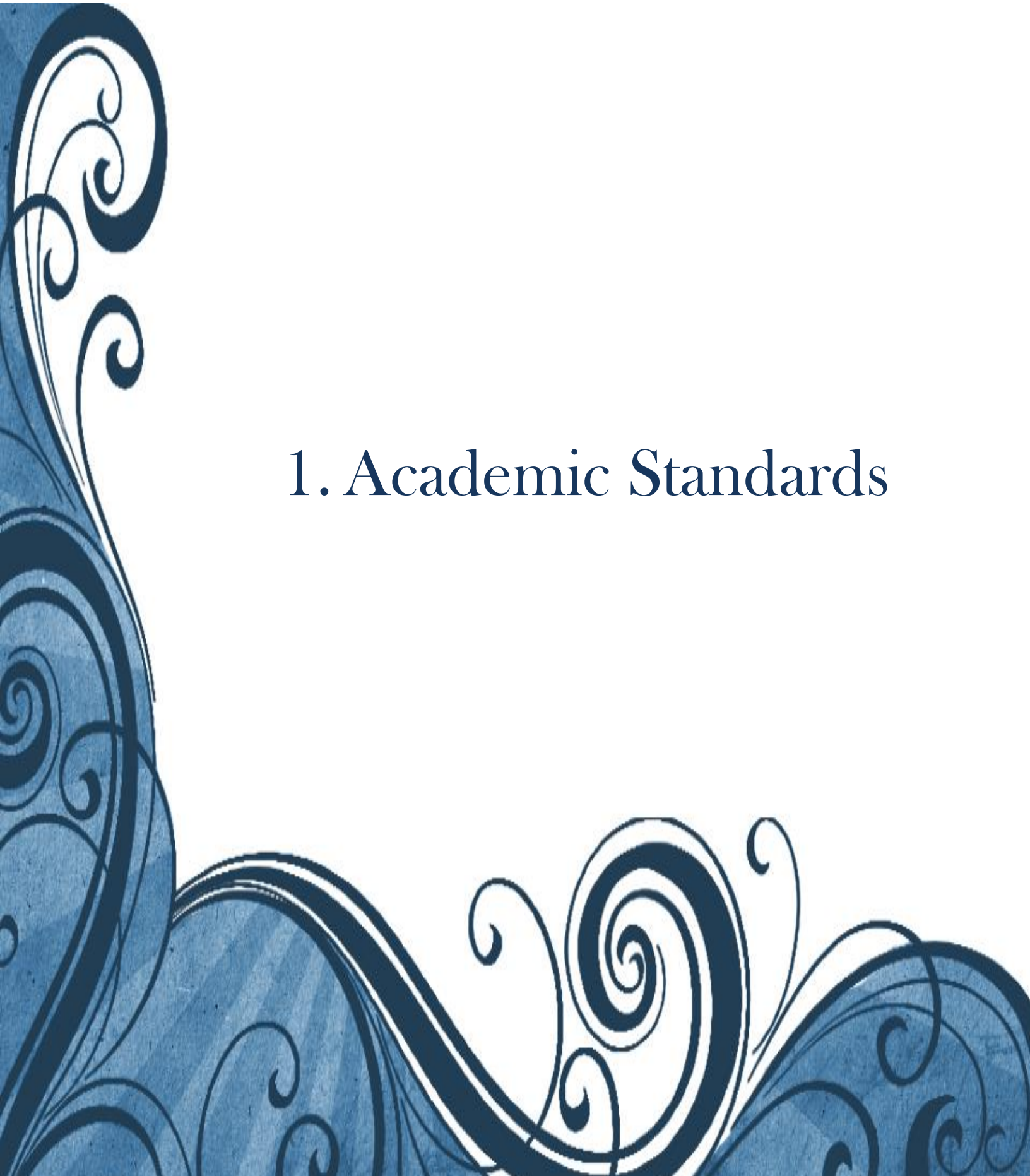
D4 Practice computer skills including word and internet communications.

D5 Develop decision making, critical thinking, problem solving and time management skills

D6 Practice self-assessment of learning needs in the field of clinical pharmacy

D7 Develop self-learning skills

D8 Evaluate other healthcare professionals malpractices



1. Academic Standards

External References for standards

Faculty is adapting with the Academic References Standards for postgraduate studies (March 2009).

Matrix 1: Comparison between the Educational Program Intended Learning Outcomes ILOs and (ARS, 2009)

	ARS	Program ILOs
Knowledge and Understanding	2.1.1- Theories and fundamentals related to the field of learning as well as in related areas.	A1 Enumerate the signs and symptoms of different psychiatry, neurologic, GIT, bone, eye, ear, pulmonary, dermatological and cardiovascular disorders. A3 Recognize the pharmacotherapy of some infectious diseases. A4 State the principles of kidney function and blood disorders A5 Describe the principles of tumor growth, diagnosis, staging and principles of chemotherapy A7 Identify different types of drug- drug interactions. A8 Classify adverse drug reactions and management procedures. A9 Explain the basic concepts of clinical pharmacokinetics including clearanc volume of distribution, half-life, elimination rate constant and compartmental model and their applications in therapeutic drug monitoring and dose modification A13 Outline different types of anemia and iron overload causes, symptoms and management

		A15 Describe different causes, complications and management of metabolic syndrome and insulin resistance A16 Outline different types of sterile solutions, pharmacopieal requirments for their compounding and sterilization methods
	2.1.2- Mutual influence between professional practice and its impact on the environment.	A2 Identify the evidence based medicine for treating different diseases including psychiatry, neurologic, GIT, bone, eye, and ear, pulmonary, dermatological and cardiovascular disorders. A14 Interpret different cardiovascular evaluation tests including heart sounds, heart rate, electro cardiogram, exercise stress test and others
	2.1.3- Scientific developments in the area of specialization.	A11 Describe the guidelines for safe handling and dispensing of special classes of medicines such as hazardous drugs, vaccines, biopharmaceuticals,
	2.1.4- Moral and legal principles for professional practice in the area of specialization.	A10 Outline different pharmaceutical services in hospital pharmacy
	2.1.5- Principles and the basics of quality in professional practice in the area of specialization.	A6 Outline different patient laboratory data including electrolytes and minerals, heart, hematology, acid-base disorders, kidney function and rheumatic diseases. A12 Outline infection control programs in different health care facilities
	2.1.6- The fundamentals and ethics of scientific research.	A17 List ethics and rules of scientific writing

Intellectual Skills	2.2.1- Analyze and evaluate information in the field of specialization and analogies to solve problems	C1 Select a therapeutic plan for treatment of general psychiatry, neurologic, and GIT, bone, eye, and ear, pulmonary, dermatological and cardiovascular disorders C5 Individualize dosage regimens for specific patient Condition
	2.2.2- Solve specified problems in the lack or missing of some information.	C4 Manage drug therapy problems effectively C8 Identify different incompatibilities encountered during compounding of large volume parentals and total parentral nutrition
	2.2.3-Correlate and integrate different pharmaceutical knowledge to solve professional problems.	C3 Interpret laboratory tests and clinical data for patients C9 Interpret different drug pharmacokinetic parameter
	2.2.4- Conduct research and write scientific report on research specified topics.	C10 Prepare a scientific report about a specific topic
	2.2.5- Evaluate and manage risks and potential hazards in professional practices in the area of specialization	C6 Identify different drug related problems and medication errors
	2.2.6- Plan to improve performance in the field of specialization.	C7 Evaluate goals, measurable objectives, and action plans for an infection control program

	2.2.7- Professional decision-making in the contexts of diverse disciplines.	C2 Select the best method for drug distribution in hospitals
Professional and Practical Skills	2.3.1- Master basic and modern professional skills in the area of specialization.	B1 Individualize therapy for different patients. B2 Detect Drug – drug & drug-food interactions B3 Modify drug dosage in case of presence of drug interaction B4 Design a self- patient monitoring system to ensure achievement of the desired therapeutic outcomes B9 Monitor drug pharmacokinetic parameters for optimum dosing B11 Perform different calculations related to pharmacokinetic parameters, preparation of large volume parentals and total parentral nutrition
	2.3.2- Write and evaluate professional reports.	B8 Analyze and integrate a wide range of information including both scientific and library based material in pharmacy practice.
	2.3.3- Assess methods and tools existing in the area of specialization.	B5 Perform an infection-control oriented risk assessment for all procedures undertaken in the hospital and for all categories of workers, including pregnant and immuno-compromised. B6 Suggest the appropriate methods to prevent infections & promote health care. B7 Choose the proper drug in various disease conditions based on knowledge of drug-drug interaction and adverse drug reactions. B10 Conduct effective counselling sessions for

		other healthcare professionals and / or patients
General and Transferable Skills	2.4.1- Communicate effectively.	D1 Communicate effectively in an oral and a written way
	2.4.2- Effectively use information technology in professional practices	D4 Practice computer skills including word and internet communications
	2.4.3- Self-assessment and define his personal learning needs.	D6 Practice self assessment of learning needs in the field of clinical pharmacy
	2.4.4- Use variable sources to get information and knowledge.	D3 Retrieve information from different sources to improve professional abilities
	2.4.5- Set criteria and parameters to evaluate the performance of others	D8 Evaluate other healthcare professionals malpractices
	2.4.6- Work in a team and lead teams carrying out various professional tasks.	D2 Work effectively in team
	2.4.7- Manage time effectively.	D5 Develop decision making, critical thinking, problem solving and time management skills
	2.4.8- Continuous and self learning.	D7 Develop self learning skills

2- Programme Structure and Contents

a- Programme duration: 1 year divided into two semesters

b- Programme structure: (30 CU)

c- Study plan:

First Semester			Second semester		
Course	CU		Course	CU	
	L	P		L	P
Clinical Laboratory Tests (D1001)	1	1	Nutrition & Anaemia (D1007)	1	1
Advanced Pharmacotherapy-1(D1003)	2	1	Drug interactions (D1002)	2	-
Advanced Pharmacotherapy-2(D1004)	2	1	Advanced Pharmacotherapy-3 (D1005)	2	1
Cardiovascular Evaluation (D1008)	1	1	Advanced Pharmacotherapy-4 (D1006)	2	1
Clinical Pharmacokinetics (D1009)	2	-	Elective 2 (D1011)	2	-
Elective 1(D1010)	2	-	Selected topics (D1012)	2	-
Project	2		Project (Cont.)	2	
Total	14 + 2		Total	14 + 2	
Total CU for the diploma	28 + 2 (project) = 30				

Selected topics: Metabolic syndrome and insulin resistance, kidney, chronic renal failure, dialysis and nasal obstruction and discharge

Elective courses: Hospital microbiology, Biostatistics, Hospital pharmacy, Sterile solutions

d. Research Project Requirements:

Brief description:

The program contains a mandatory 'Research Project' which constitutes 2CU and must be completed under the supervision of a faculty member. A comprehensive dissertation and presentation on the project work is required from the student.

The major intended learning outcomes of the research project:

1) Identify a research problem and use available sources (internet and databases) for gathering literature review.
2) Identify the steps of scientific research.
3) Perform a plan; analysis, design and evaluation of a given problem.
4) Demonstrate certain levels of communication skills.
5) Demonstrate ability to work in team during the project.
6) Demonstrate ability in writing, editing and ordering a dissertation.
7) Identify plagiarism during dissertation writing.

e. Learning Outcomes in Domains of Teaching Strategies & Assessment Methods:

ILOs	teaching method	assessment method
Knowledge and Understanding Intellectual Skills	Lectures Case study Self learning	Written and oral Exam
Professional and practical Skill	Case study Problem solving Research project	Practical Exam Case discussion Rubric
Intellectual Skills General and Transferable Skills	Group presentation Structured Assignment Research project	Oral Exam Rubric

f- Program Curriculum:

Course Code	Course Title	Credit hours	Program ILOs Covered
Mandatory Courses:			
D1001	Clinical Laboratory Tests	2	A6, A15, B4, B8, B10, C3, C10, D1, D4, D6, D7
D1002	Drug interactions	2	A7, B2, B, C63, D2, D6
D1003	Advanced Pharmacotherapy-1	3	A1, A2, A7, A8, B1, B2, B3, B4, B7, C1, C3,C4, D2, D3
D1004	Advanced Pharmacotherapy-2	3	A1, A2, A5, A7, A8, B1, B2, B3, B4, B8, B9, C1, C4, C5, D2, D3
D1005	Advanced Pharmacotherapy-3	3	A1, A2, A7, A8, B1, B2, B4, B3, B7, B8, C1, C4, C5, D3, D6, D7
D1006	Advanced Pharmacotherapy-4	3	A3, A4, A7, A8, B1, B3, B4, B7, B8, C4, C5, D2, D3
D1007	Nutrition & Anaemia	2	A4, A13, B1, B4, C5, C10, D1, D2, D5, D6, D7
D1008	Cardiovascular Evaluation	2	A14, B4, B8, C3, D7, D8

D1009	Clinical Pharmacokinetics	2	A9, B1, B4, B8, B9, B11, C3, C4, C5, D1, D5, D7
Elective courses/Selected topic:			
D1010	elective 1	2	A10, A11, A12, A16, B5, B6, B10, B11, C2, C4, C6, C7, C8, D5, D7, D8
D1011	elective 2	2	A10, A11, A12, A16, B5, B6, B10, B11, C2, C4, C6, C7, C8, D5, D7, D8
D1012	Selected topic	2	A15, B1, C5, D1, D5
	Project	2	A17, B8, C10, D1, D2, D3, D4, D6, D7

The admission to the program requires a bachelor's degree in pharmacy from Egypt or an equivalent certificate from a foreign institute recognized by the Ministry of Higher Education and accepts incoming students according to the rules of acceptance of expatriates.

1- Students must attend lectures and practical lessons, their attendance must be not less than 75 % otherwise, and the diploma council prevents him/her from entering the final written exam.

2- A minimum of 60% of the maximum grade (MG) is the passing grade for all courses.

3- Course grades are as follows

Degree classification:

Less than 60 %	**Fail**
From 60 % and less than 65 %	**Fair**
From 65 % and less than 75 %	**Good**
From 75 % and less than 85 %	**Very Good**
From 85 % and more	**Excellent**

4- The Faculty of Pharmacy Council will grant the Diploma in Clinical Pharmacy after passing the courses and the graduation project

5- Assessment

Methods of Assessment	**Weight of Assessment**
Written Exam	60% of total marks
Practical Exam/course activities	20% of total marks
Oral Exam	20 % of total marks

For courses with no practical, the final will constitute 80% of the total assessment

Grade Scale	Grade point average value (GPA)	Numerical scale
A+	5	≥ 95%
A	4.5	90- < 95%
B+	4	85- < 90%
B	3.5	80- < 85%
C+	3	75- < 80%
C	2.5	70- < 75%
D+	2	65- < 70%
D	1.5	60- < 65%

6- Evaluation of program intended learning outcomes

Evaluator	Tool
1- candidates	Questionnaires
2-Stakeholders	Questionnaires for staff members participating in teaching Questionnaires for Labor market organizations members
3-External reviewer	Prof. Gamal El-Magharabi (Faculty of Pharmacy – Tanta University)
4- Internal reviewer	Prof. Sahar ElSewefi Head of Biochemistry department
4-Others	Committee supervising clinical pharmacy diploma program

7- Learning Resources, Facilities and Equipment

- The requirements of text book and other materials for teaching are identified by the instructor teaching the course.
- Textbooks are made available to students through the Faculty library and are listed in the course specification
- Course handouts are also available for the students
- Air conditioned, well seated teaching hall equipped with data show is available for the students
- Faculty of pharmacy and medicine labs are available in case of courses need practical application

Clinical laboratory tests

Course specification of
Clinical laboratory tests

A- Course specifications:

- Program on which the course is given: Diploma in clinical pharmacy
- Major or Minor element of program: Major
- Department offering the program: -
- Department offering the course: Biochemistry
- Date of specification approval: 2017-2018

1- Basic information:

Title: Clinical laboratory tests
Code: D1001
Lectures: 1 hr/week Credit hours: 2 hrs/week
Total: 2 credit hrs/week

2- Overall aim of the course:

On completion of the course, the students will be able to select, monitor appropriate assessments for different diseases (heart, kidney and liver, GIT, rheumatic diseases, acid base, electrolytes and endocrine disorders) and interpret laboratory data and how to deal with the patient according to the results. In addition to develop skills necessary for proper professional practice.

3. Intended learning outcomes (ILOs):

Knowledge and Understanding	
a1	Review different laboratory tests for assessment of heart, kidney, liver, GIT, rheumatic diseases.
a2	Determine the electrolytes, acid base disorders and how to manage them
a3	Identify different endocrine, metabolic disorders ,and molecular therapeutic aspects .
a 4	Explain the main outcomes of CBC and urine determination
Professional and practical skills	
b1	Assess electrolyte, acid base balance abnormalities and recommend an appropriate treatment plan
b2	Compare and contrast the various therapeutic agents used in treating endocrine and metabolic disorders..
b3	Interpret laboratory tests related to liver, heart, kidney, GIT functions in order to recommend appropriate medications
Intellectual skills	
c1	Apply good laboratory practice and its importance in clinical practice
c2	Analyze and interpret results from laboratory tests of different organs
c3	Analyze CBC and urine report
General and Transferable Skills	
d1	Use information technology skills in developing professional practices.
d2	Get independent learning
d3	Improve scientific brain storming capabilities of team members

4. Course Content:

Week No.	Lecture (1hr/week)	Practical session (2hr/week)
1	• Introduction to common laboratory tests	• Good laboratory practice. • Common laboratory techniques
2	• Acid base disorders.	• Acid base cases discussion • Cases and lab. reports
3	• Electrolytes and minerals	• Case study(sodium and potassium, calcium, phosphate)
4	• Electrolytes and minerals	• Electrolytes and minerals cases study
5	• The heart (laboratory tests and diagnostic procedures)	• Case study (AMI) • CKMB, MB, Tropinen
6	• Kidney function	• Case study – Kidney disease • Urine analysis report
7	• Interpretation of Laboratory tests for liver	• Case study – Liver disease • ALT, AST, GGT, Bilirubin
8	• **Self-learning activities**: • Hepatitis and drug induced nephrotoxicity	• **Presentation and discussion**
9	• GIT disorders	Case study (peptic ulcer, malabsorption)
10	• GIT disorders	Case study (pernicious anemia, cystic fibrosis, celiac disease)
11	• Endocrine disorders	• Case study – endocrine disorders
12	• Interpretation of clinical laboratory data	• Open discussion
13	• management of different diseases	
14	• Revision	•
15	• Revision	•

5- Teaching and Learning Methods:

- Interactive Lectures
- Practical sessions
- Case study
- Self learning (Activity, group discussion and presentations)

6- Student Assessment methods:

Written exams to assess: a1, a2, a3, a4, b2,c1, c2 and c3

Practical exam to assess: b1, b2 and b3

Oral exam to assess: a1, a2, a3, a4, c1, c2 and c3

Activity to assess: a1, b2, c3, d1, d2, d3

Assessment schedule:

Assessment (1): Activity	Week 8
Assessment (2): Practical exam	Week 14
Assessment (3): Written exam	Week 15
Assessment (4): oral exam	Week 15

Weighting of Assessment:

Assessment method	Marks	Percentage
• Written exam	50	50 %
• Practical exam and activities	30	30 %
• Oral exam	20	20 %
TOTAL	**100**	**100%**

7- References and books:

A-Scientific papers:

Lalić T, Beleslin B, Savić S, Stojković M, Cirić J, Zarković M. Challenges in interpretation of thyroid hormone test results. Srp Arh Celok Lek. 2016 Mar-Apr;144(3-4):200-3.

B- Essential books:

Drew Provan and Andrew Krentz. Oxford Handbook of Clinical and Laboratory Investigation, 2012. Oxford university press, Inc., New York, USA.

C- Suggested books:

Graham Basten. Introduction to clinical biochemistry: Interpreting blood results, 2010. Ventus publishing APs. www.bookboon.com

D- Websites: pubmed, Science direct, Nejm, Weilyinterscience

Facilities required for teaching and learning:
For lectures: Black (white) boards, computer, data show.

- **Course Coordinators: Prof Dr/ Sahar El-Swefy**
- **Head of Department: Prof Dr/ Sahar El-Swefy**
- **Date: تـم اعتمـاد توصـيف المقـرر بمجلـس قسـم الكيميـاء الحيويـة بتـاريخ 2017/9/26**

Matrix I of Clinical laboratory tests

	Course Contents	ILOs												
		Knowledge and Understanding				Professional and practical skills			Intellectual skills			General Transferable skills		
		a1	a2	a3	a4	b1	b2	b3	c1	c2	c3	d 1	d2	d3
1	• Introduction to common laboratory tests	X												
2	• Acid base disorders	X	X			x								
3	• Electrolytes and minerals	X	X			x								
4	• The heart (laboratory tests and diagnostic procedures)	X						X		X				
5	• Kidney function	X						X		X	x	x	X	X
6	• Interpretation of Laboratory tests for liver	X						x		x	x	x	x	X
7	• GIT disorders	X						X	X	X				
8	• Endocrine disorders			x			X			X				
9	• Interpretation of clinical laboratory data and management of different disease				X			X		x	X			
	Practical part:													
1	• Good laboratory practice. • Common laboratory techniques					X			X	X				
2	• Acid base cases discussion • Cases and lab. reports					X			X	X				
3	• Case study(sodium and potassium, calcium,					X			X	X				

	phosphate)													
4	• Electrolytes and minerals cases study					X			X	X				
5	• Case study (AMI) • CKMB, MB, Tropinen							X	X	X				
6	• Case study – Kidney disease • Urine analysis report							X	X	X				
7	• Case study – Liver disease • ALT, AST, GGT, Bilirubin							X	X	X				
8	• Case study (peptic ulcer, malabsorption)							X	X	X				
9	• Case study (pernicious anemia, cystic fibrosis, celiac disease)							X	X	X	X			
10	• Case study – endocrine disorders						X		X	X				
11	• **Self learning activities**: • Hepatitis and drug induced nephrotoxicity											X	X	X

- **Course Coordinators: Prof Dr/ Sahar El-Swefy**
- **Head of Department: Prof Dr/ Sahar El-Swefy**
- **Date: 2017/9/26 تم اعتماد توصيف المقرر بمجلس قسم الكيمياء الحيوية بتاريخ**

Drug interaction

Course specification of
Drug interaction

A- Course specifications:

- Program on which the course is given: Diploma in clinical pharmacy
- Major or Minor element of program: Major
- Department offering the program: -
- Department offering the course: Pharmacology & Toxicology Department
- Date of specification approval: 2017-2018

1- Basic information:

Title: Drug Interaction
Code: D1002
Lectures: 2 hr/week Practical:--- Tutorials: ---

Credit hours: 2 hrs/week
Total: 2 credit hrs/week

2- Overall aim of the course:

On completion of the course, the students will be able to:

- Describe the mechanisms of drug interactions
- Outline the clinical significance of interactions between drugs
- Explain the interactions of specific drug groups
- Demonstrate how to manage different types of drug interactions

3. Intended learning outcomes (ILOs):

Knowledge and Understanding	
a1	Describe the basic mechanisms of drug interactions
a2	Outline the clinical significance of drug interactions
a3	Enumerate the general methods for the management of drug interactions
Intellectual skills	
c1	Differentiate between adverse and beneficial interactions of drugs
c2	Suggest novel methods for the management of drug interactions
General and Transferable Skills	
d1	Demonstrate critical thinking and decision making
d2	Work effectively as a member of a team

4. Course Content:

Week No.	Lecture (2hr/week)
1	Overview of drug interactions
2	Mechanisms of drug interactions
3	Management of drug interactions
4	-Drug-food and drug-herb interaction
5	- Drug interaction of antibiotics
6	- Drug interaction of CVS acting agents
7	- Drug interaction of respiratory system –acting agents
8	- Drug interaction of CNS acting agents
9	- Drug interaction of CVS acting agents
10	- Drug interaction of GI tract acting agents
11	- Drug interaction of agents used for kidney disorders
12	- Drug interaction of endocrine system- acting agents
13	- Drug interaction of agents used for obesity and anemia
14	- Case studies
15	Overview of drug interactions

5- Teaching and Learning Methods:

- Lectures
- Self-learning
- Open discussion
- Case studies
- Projects

6- Student Assessment methods:

1. Written exam to assess: a1, a2, a3, c1, c2, d1

2. Oral exam to assess: a1, a2, a3, c1, c2, d1
3. Activity, quizzes and projects a1, a2, a3, c1, d1, d2

Assessment schedule:

Assessment (1): Activity, quizzes	Weeks 7 and 12
Assessment (2): Written exam	Week 12
Assessment (3): Written exam	Week 16
Assessment (4): Oral exam	Week 16

Weighting of Assessment:

Assessment method	Marks	Percentage
Written exam	80	80%
Oral exam	20	20%
TOTAL	100	100%

7- References and books:

A-Scientific papers:

- British J Pharmacol,
- European J Pharmacol,
- Pharmacology,
- Pharmacology and Toxicology

B- Essential books:

Richard A. Harvey, Michelle A. Clark, Lippincott's Illustrated Reviews Pharmacology 5th ed. Lippincott Williams & Wilkins, 2012

C- Suggested books:

i- H.P.Rang,M.M.Dale,J.M.Ritter& R.J. Flower ed. RANG & DALE Pharmacology 6th 2008 Churchill 2. Livingstone Elsevier London.

ii- Katzung, B.G., ed. Basic and Clinical Pharmacology. 9th ed. New York : McGraw Hill, 2006.

iii- Bennet P.N., and M.J. Brown, eds. Clinical Pharmacology. 10th ed. London : Churchil Livingstone, 2006.

iv- Hardman J.G., L.E. Limbrid, and A.G. Gilman, eds. Goodman & Gilman's the Pharmacological Basis of Therapeutics. 10th ed. New York : McGraw Hill, 2006.

v- Luellmann H., L. Hein, K. Mohr, and D. Bieger. Color Atlas of Pharmacology. 3rd ed. Stuttgart : Thieme, 2005.

vi- Brenner,G.M.and Steven,C.W.., Pharmacology,3rd ed.,2010

D- Websites:

Pubmed.com

www.medconsult.com/www.pharmanet.com

https://reference.medscape.com/drug-interactionchecker

Facilities required for teaching and learning:

Black (white) board, Data show.

- **Course Coordinators: Dr/ Samar Rizq**
- **Head of Department: Prof / Mohamed Baraka**
- **Date:2018-2017 تم اعتماد توصيف المقرر بمجلس قسم الكيمياء الحيوية بتاريخ**

Matrix I of Drug interaction course							
Course contents		ILOs for drug interaction course					
		knowledge & understanding			intellectual skills		Transferable and general skills
Lectures		a1	a2	a3	c1	c2	d1
1	Overview of drug interactions		x				
2	Mechanisms of drug interactions	x					
3	Management of drug interactions			x			
4	Drug-food interactions & drug-herb interaction	x	x	x			x
5	Drug interactions of anti-infective agents	x	x	x			x
6	Drug interactions of cardiovascular acting agents	x	x	x			x
7	Drug interactions of CVS acting agents	x	x	x			x
8	Drug interaction of respiratory system – acting agents	x	x	x			x
9	Drug interactions of CNS acting agents	x	x	x			x
10	Drug interaction of GI tract acting agents	x	x	x			x
11	Drug interaction of agents used for kidney disorders	x	x	x			x
12	Drug interactions of endocrine acting agents	x	x	x			x
13	Drug interaction of agents used for obesity and anemia	x	x	x			x
14	Case studies				x	x	x
15	Case studies				x	x	x

- **Course Coordinators: Dr/ Samar Rizq**
- **Head of Department: Prof / Mohamed Baraka**
- **Date:2018-2017 تم اعتماد توصيف المقرر بمجلس قسم الكيمياء الحيوية بتاريخ**

Advanced Pharmacotherapy-1

Course specification of Advanced Pharmacotherapy-1

A- Course specifications:

- Program on which the course is given: Diploma in clinical pharmacy
- Major or Minor element of program: Major
- Department offering the program: -
- Department offering the course: pharmacy practice
- Date of specification approval: 2017-2018

1- Basic information:

Title: Advanced Pharmacotherapy-1
Code: D1003
Lectures: 2 hrs/week practical:1
Credit hours: 3 hrs/week

2- Overall aim of the course:

On completion of the course, the students will be able to:

- Describe pharmacotherapy of some general psychiatry and neurologic disorders
- Identify different GIT disorders.

3. Intended learning outcomes (ILOs):

Knowledge and Understanding	
a1	Describe principles of general psychiatry.
a2	Recognize principle of GIT disorders.
a3	Identify systematic approach of selection of medications and their pharmacology.
a 4	Summarize the principle of neurology.
Professional and practical skills	
b1	Select the most appropriate medications for general psychiatry, neurologic, and GIT disorders based on its activity, side effects & contraindications.
b2	Monitor the efficacy of medications.
b3	Examine the response of patient to the selected drugs.
b4	Differentiate between different classes of medications treating the same disease.
Intellectual skills	
c1	Apply methods for diagnosing general psychiatry, neurologic, and GIT disorders.
c2	Select a therapeutic plan for treatment of general psychiatry, neurologic, and GIT disorder.
c3	Identify the most suitable treatment regimen based upon specific patient Condition
General and Transferable Skills	
d1	Collaborate in team work or independently in different Pharmaceutical fields.
d2	Retrieve information from different resources.

4. Course Content:

Week number	Lecture (2 hours/week)	Practical (1 hour/week)
1	General psychiatry	Case study
2	Depression	Case study
3	Bipolar disorder	Case study
4	Schizophrenia	Case study
5	Schizophrenia	Case study
6	Neurology, epilepsy	Case study
7	Epilepsy	Case study
8	Parkinson disease	Case study
9	Ischemic stroke Headaches and Multiple sclerosis	Case study
10	GIT disorders Nausea, vomiting, constipation, diarrhea	Case study
11	GIT disorders GERD	Case study
12	GIT disorders Peptic ulcer	Case study
13	Viral hepatitis	Case study
14	Liver cirrhosis complications	Case study
15	General psychiatry	Case study

5- Teaching and Learning Methods:

- Lectures (√)
- Tutorial exam (√)
- Case study

6- Student Assessment methods:

Written exam assess: a1, a2, a3, a4, c1, c2, c3

Oral exam assess: a1, a2, a3, a4, c1, c2, c3

Practical exam assess: b1, b2, b3, b4

Activity assess: d1, d2, c1, c2, c3

Assessment schedule:

Assessment (1): Practical exam	Week 15
Assessment (2): Final exam	Week 16
Assessment (3): oral exam	Week 16

Weighting of Assessment:

Assessment method	Marks	Percentage
• Written exam	50	50 %
• Practical exam and activities	30	30 %
• Oral exam	20	20 %
TOTAL	**100**	**100%**

7- References and books:

A-Scientific papers:

B- Essential books:

- *Course notes:*
- Pharmacotherapy 10th edition, 2013.

C- Recommended Books:

- *Applied therapeutics. Ed kuda kimble fourth edition.*

D- Recommended websites :

- *www.pubmed.com.*
- *www.medscape.com.*
- *www.Guidelines.org.*

Facilities required for teaching and learning:

For lectures: Class rooms, Computers. Internet, -data show

Course co-ordinator: **Dr . Ahmed Amin**

Date : / 7 /2017 تم اعتماد التوصيف

Matrix I of Advanced Pharmacotherapy-1

	Course Contents	ILOs												
		Knowledge and Understanding				Professional and practical skills				Intellectual skills			General Transferable skills	
		a1	a2	a3	a4	b1	b2	b3	b4	c1	c2	c3	d1	d2
1	• General psychiatry	x				x	x	x	x	x	x	x	x	x
2	• Depression	x				x	x	x	x	x	x	x	x	x
3	• Bipolar disorder	x				x	x	x	x	x	x	x	x	x
4	• Schizophrenia	x				x	x	x	x	x	x	x	x	x
5	• Neurology epilepsy			x	x	x	x	x	x	x	x	x	x	x
6	• epilepsy			x	x	x	x	x	x	x	x	x	x	x
7	• Parkinson disease			x	x	x	x	x	x	x	x	x	x	x
8	Ischemic stroke • Headaches and Multiple sclerosis			x	x	x	x	x	x	x	x	x	x	x

9	GIT disorders • Nausea, vomiting, constipation, diarrhea		x	x		x	x	x	x	x	x	x	x	x
10	GIT disorders GERD		x	x		x	x	x	x	x	x	x	x	x
11	GIT disorders - Peptic ulcer		x	x		x	x	x	x	x	x	x	x	x
12	Viral hepatitis		x	x		x	x	x	x	x	x	x	x	x
13	Liver cirrhosis complications		x	x		x	x	x	x	x	x	x	x	x

Course co-ordinator: **Dr . Ahmed Amin**

تم اعتماد التوصيفDate : / 7 /2017

Advanced Pharmacotherapy-2

Course specification of Advanced Pharmacotherapy-2

A- Course specifications:

- Program on which the course is given: Diploma in clinical pharmacy
- Major or Minor element of program: Major
- Department offering the program: -
- Department offering the course: Pharmacy practice
- Date of specification approval: 2017-2018

1- Basic information:

Title: Advanced Pharmacotherapy-2
Code: D1004
Lectures: 2 hrs/week practical:1
Credit hours: 3 hrs/week

2- Overall aim of the course:

Upon successful completion of this course the student should be able to:

- Outline the basic principles of cancer therapeutics including tumor growth, diagnosis, staging, chemotherapy, systematic approach of selection of antimicrobials and their pharmacology.
- State principles of eye infections including the pathophysiology, clinical picture, diagnosis & pharmacotherapy.
- Describe principles of bone disorders including the pathophysiology, clinical picture, diagnosis & pharmacotherapy.

3. Intended learningoutcomes (ILOs):

Knowledge and Understanding	
a1	Describe the principles of tumor growth, diagnosis and staging.
a2	Outline principle of chemotherapy
a3	Define principles of eye and several eye problems
a4	Summarize systematic approach of selection of medications for eye disorders
a5	List different bone disorders
a6	Identify the principles of drug selection for each individual case.
Professional and practical skills	
b1	Apply methods for tumor detection
b2	Design a therapeutic plan for tumor treatment based on its stage
b3	Monitor response of patient to antitumor drugs
b4	Design a therapeutic plan for eye disorders
b5	Design a therapeutic plan for bone disorders.
Intellectual skills	
c1	Select the most appropriate antitumor agent based on its activity, side effects & contraindications
c3	Differentiate between different cancer types, their etiology, complications and prognosis
c4	suggest the most suitable treatment regimen for bone disorders.
c5	Select the most suitable treatment regimen for eye disorders
General and Transferable Skills	
d1	Collaborate in team work or independently in different Pharmaceutical fields.
d2	Retrieve information from different resources.

4. Course Content:

Week number	Lecture (2 h/week)	Practical (1 h/week)
1	**Part 1:** Eye disorders Acute allergic conjunctivitis	**case study**
2	**Eye disorders** Acute infective conjunctivitis	**case study**
3	**Eye disorders** Glaucoma Macular degeneration	**case study**
4	**Part 2:** oncology: Classification of chemotherapeutics and cancer prevention	**case study**
5	Breast cancer	**case study**
6	Bone cancer	**case study**
7	Lung cancer	**case study**
8	Lung cancer	**case study**
9	Lymphoma	**case study**
10	**Part 3:** Bone disorders	**case study**
11	Osteoporosis and osteopenia	**case study**
12	Osteoporosis and osteopenia	**case study**
13	Gout	**case study**
14	Osteoarthritis	**case study**
15	Rheumatoid arthritis	**case study**

5- Teaching and Learning Methods:

- Lectures
- Tutorial
- Case study

6- Student Assessment methods:

Written exam assess: a1, a2, a3,a4, a5,a6, c1, c2, c3,c4, c5

Oral exam assess: a1, a2, a3,a4, a5,a6, c1, c2, c3,c4, c5

Activity assess: d1, d2

Practical exam: b1, b2, b3, b4, b5

Assessment schedule:

Assessment (1): Practical exam	Week 15
Assessment (2): Final exam	Week 16
Assessment (3): oral exam	Week 16

Weighting of Assessment:

Assessment method	Marks	Percentage
• Written exam	50	50 %
• Practical exam and activities	30	30 %
• Oral exam	20	20 %
TOTAL	**100**	**100%**

7- References and books:

A-Scientific papers:

B- Essential books:

- *Course notes:*
- Pharmacotherapy 10th edition, 2013.
- A Pathophysiologic Approach (2005) Dipiro JT,McGrw-Hill. 6th edition

C- Recommended Books:

Applied therapeutics. Ed kuda kimble fourth edition.

D- Recommended websites :

- *www.pubmed.com.*
- *www.medscape.com.*
- *www.Guidelines.org.*

Facilities required for teaching and learning:

For lectures: Class rooms, Computers. Internet, -data show

Course co-ordinator: Dr . Ahmed Amin

Date : / 7 /2017 تم اعتماد التوصيف

Matrix I of Advanced Pharmacotherapy-2

	Course Contents	ILOs																
		Knowledge and Understanding						Professional and practical skills					Intellectual skills					General Transferable skills	
		a1	a2	a3	a4	a5	a6	b1	b2	b3	b4	b5	c1	c2	c3	c4	c5	d1	d2
1	• Eye disorders • Acute allergic conjunctivitis			x	x		x				x					x			
2	• Eye disorders • Acute infective conjunctivitis			x	x		x				x					x			
3	• Eye disorders • Glaucoma • Macular degeneration			x	x		x				x					x		x	x
4	•Part 2: oncology: • Classification of chemotherapeutics and cancer prevention		x					x	x	x			x	x	x			x	x

5	•Breast cancer		x					x	x	x			x	x	x			x	x
6	•Bone cancer		x					x	x	x			x	x	x			x	x
7	•Lung cancer		x					x	x	x			x	x	x			x	x
8	•Lymphoma		x					x	x	x			x	x	x			x	x
9	• **Part 3:** Bone disorders					x	x					x					x	x	x
10	Osteoporosis and osteopenia		x			x	x					x					x	x	x
11	Gout		x			x	x					x					x	x	x
12	Osteoarthritis		x			x	x					x					x	x	x
13	Rheumatoid arthritis		x			x	x					x					x	x	x
14	Case study							x	x	x	x	x						X	X

Course co-ordinator: Dr . Ahmed Amin

تم اعتماد التوصيفDate : / 7 /2017

Advanced Pharmacotherapy-3

Course specification of Advanced Pharmacotherapy-3

A- Course specifications:

- Program on which the course is given: Diploma in clinical pharmacy
- Major or Minor element of program: Major
- Department offering the program: -
- Department offering the course: pharmacy practice
- Date of specification approval: 2017-2018

1- Basic information:

Title: Advanced Pharmacotherapy-3
Code: D1005
Lectures: 2 hrs/week practical: 1
Credit hours: 3 hrs/week

2- Overall aim of the course:

Upon successful completion of this course the student should be able to:

- Recognize pharmacotherapy of some pulmonary diseases and cardiovascular diseases.
- Outline the etiology and diagnosis of several pulmonary and cardiovascular diseases.
- Appraise different cases of pulmonary and cardiovascular diseases.

3. Intended learning outcomes (ILOs):

Knowledge and Understanding	
a1	Recognize causes, diagnosis and treatment of some pulmonary and cardiovascular diseases.
a2	Recognize principle of GIT disorders.
a3	Summarize etiology and pathophysiology of different pulmonary and cardiovascular diseases.
a4	Identify different pulmonary and cardiovascular disorders.
Professional and practical skills	
b1	Interpret different laboratory and physical assessment parameters used in monitoring pharmacotherapy of pulmonary and cardiovascular diseases
b2	Suggest the appropriate drug, dose, frequency, and duration for different pulmonary and cardiovascular diseases
b3	Design the best suitable treatment protocol for different pulmonary and cardiovascular disorders
b4	Monitor the efficacy of the applied pulmonary and cardiovascular pharmacotherapy
Intellectual skills	
c1	Analyze causes of different pulmonary and cardiovascular diseases
c2	Select the best method of diagnosis for pulmonary and cardiovascular diseases.
c3	Select the suitable protocol of therapy for pulmonary and cardiovascular diseases.
General and Transferable Skills	
d1	Implement continuous and lifelong self-learning
d2	Retrieve information from different information sources, including information retrieval through online computer searches

4. Course Content:

Week number	Lecture (2h/week)	Practical (1 h/ week)
1	Introduction	Case study
2	Asthma	Case study
3	COPD	Case study
4	COPD	Case study
5	Hypertension	Case study
6	hypertensive crisis	Case study
7	Heart failure and acute decompensated heart failure	Case study
8	Heart failure and acute decompensated heart failure	Case study
9	Arrhythmia	Case study
10	Arrhythmia	Case study
11	Angina	Case study
12	Angina	Case study
13	Acute coronary syndrome	Practical exam
14	Acute coronary syndrome	
15	Revision	

5- Teaching and Learning Methods:

- Lectures (√)
- Discussion (√)
- Brain storming (√)
- Case study (√)

6- Student Assessment methods:

Written exam assess: a1, a2, a3, a4, c1, c2, c3

Oral exam assess: a1, a2, a3,a4, c1, c2, c3

Activity assess: d1, d2

Practical exam assess: b1, b2, b3, b4

Assessment schedule:

Assessment (1): practical exam	Week 13
Assessment (2): Final exam	Week 16
Assessment (3): oral exam	Week 16

Weighting of Assessment:

Assessment method	Marks	Percentage
Final-Term Examination	50	50 %
Oral Examination	20	20 %
Practical Examination	30	30 %
TOTAL	**100**	**100%**

7- References and books:

A-Scientific papers:

B- Essential books:

Course notes:
Pharmacotherapy principle and practice, McGraw-Hill Education 4th edition, 2013.
A Pathophysiologic Approach (2005) Dipiro JT,McGrw-Hill. 6th edition

C- Recommended Books:

- *Applied therapeutics. Ed koda kimble fourth edition, Lippincott Williams, tenth edition.*

- *Updates in Therapeutics®: Pharmacotherapy Preparatory Review and Recertification Course, 2017. (eds) Burke J, Cauffield J, El-Ibiary S, et al.. Lenexa, KS: American College of Clinical Pharmacy*

D- Recommended websites :

- *www.pubmed.com.*
- *www.medscape.com.*
- *www.Guidelines.org.*

Facilities required for teaching and learning:
For lectures: Class rooms, Computers. Internet, -data show

Course co-ordinator: Ahmad Amin

تم اعتماد التوصيف 2017/ 7 / Date :

Matrix I of Advanced Pharmacotherapy-3

	Course Contents	ILOs												
		Knowledge and Understanding				Professional and practical skills				Intellectual skills			General Transferable skills	
		a1	a2	a3	a4	b1	b2	b3	b4	c1	c2	c3	d1	d2
1	• Introduction	x												
2	• Asthma		x	x	x	x	x	x		x	x	x	x	x
3	• COPD		x	x	x	x	x	x		x	x	x	x	x
4	• Hypertension and hypertensive crisis	x	x	x	x	x	x	x	x	x	x	x	x	x
5	• Heart failure and acute decompensated heart failure		x	x	x	x	x	x	x	x	x	x	x	x
6	• Heart failure and acute decompensated heart failure		x	x	x	x	x	x	x	x	x	x	x	x
7	• Arrhythmia		x	x	x	x	x	x	x	x	x	x	x	x
8	• Angina		x	x	x	x	x	x	x	x	x	x	x	x
9	• Acute coronary syndrome		x	x	x	x	x	x	x	x	x	x	x	x
13	Case study									x	x	x	x	x

Course co-ordinator: Ahmad Amin

Date : / 7 /2017 تم اعتماد التوصيف

Advanced Pharmacotherapy-4

Course specification of Advanced Pharmacotherapy-4

A- Course specifications:

- Program on which the course is given: Diploma in clinical pharmacy
- Major or Minor element of program: Major
- Department offering the program: -
- Department offering the course: Pharmacy practice
- Date of specification approval: 2017-2018

1- Basic information:

Title: Advanced Pharmacotherapy-4
Code: D1006
Lectures: 2 hrs/week practical:1 hr/week
Credit hours: 3 hrs/week

2- Overall aim of the course:

Upon successful completion of the course the student should be able to:

- Outline pharmacotherapy of some infectious diseases and cases involving certain diseases.
- Recognize the principles of infections.
- Define the principles of kidney function and blood disorders

3. Intended learning outcomes (ILOs):

Knowledge and Understanding	
a1	Describe principles of infections
a2	Recognize principle of infectious diseases
a3	Identify systematic approach of selection of medications and their pharmacology
a4	Illustrate the principles of renal disorders.
Professional and practical skills	
b1	Select the most appropriate medications for infectious diseases and renal disorders based on its activity, side effects & contraindications
b2	Design a therapeutic plan for treatment of infectious diseases and renal disorders.
b3	Monitor the efficacy of medications.
Intellectual skills	
c1	Evaluate the appropriate methods for diagnosing infectious diseases and renal disorders.
c2	Differentiate between different options of treatment of a specific disease
c3	Select the most suitable treatment regimen based on specific patient Condition.
General and Transferable Skills	
d1	work effectively as a member of a team
d2	Retrieve information from different resources.

4. Course Content:

Week number	Lecture (2 hr/week)	Practical (1hr/week)
1	Introduction	Case study
2	Acute kidney injury	Case study
3	Chronic kidney diseases	Case study
4	Chronic kidney diseases	Case study
5	Introduction to infectious diseases	Case study
6	Respiratory tract infections	Case study
7	Respiratory tract infections	Case study
8	Respiratory tract infections	Case study
9	Urinary tract infections	Case study
10	Urinary tract infections	Case study
11	Revision	

5- Teaching and Learning Methods:

- Lectures (√)
- Tutorial exam (√)
- Discussion (√)
- Brain storm (√)
- Case study (√)

6- Student Assessment methods:

Written exam assess: a1, a2, a3,a4, c1, c2, c3

Oral exam assess: a1, a2, a3,a4, c1, c2, c3

Case study & practical exam: b1, b2, b3, d1, d2

Assessment schedule:

Assessment (1): practical exam	Week 10
Assessment (2): Final exam	Week 16
Assessment (3): oral exam	Week 16

Weighting of Assessment:

Assessment method	Marks	Percentage
Final-Term Examination	50	50 %
Oral Examination	20	20 %
Practical Examination	30	30 %
TOTAL	**100**	**100%**

7- References and books:

A-Scientific papers:

B- Essential books:

Course notes:

- Pharmacotherapy principle and practice, McGraw-Hill Education 4th edition, 2013.
- A Pathophysiologic Approach (2005) Dipiro JT,McGrw-Hill. 6th edition

C- Recommended Books:

- ***Applied therapeutics. Ed koda kimble fourth edition,*** Lippincott Williams, tenth edition.

- Updates in Therapeutics®: Pharmacotherapy Preparatory Review and Recertification Course, 2017. (eds) Burke J, Cauffield J, El-Ibiary S, et al.. Lenexa, KS: American College of Clinical Pharmacy

D- Recommended websites :

- *www.pubmed.com.*
- *www.medscape.com.*
- *www.Guidelines.org.*

Facilities required for teaching and learning:

For lectures: Class rooms, Computers. Internet, -data show

Course co-ordinator: Dr . Ahmed Amin

Date : / 7 /2017 تم اعتماد التوصيف

Matrix I of Advanced Pharmacotherapy-4

	Course Contents	ILOs											
		Knowledge and Understanding				Professional and practical skills			Intellectual skills			General Transferable skills	
		a1	a2	a3	a4	b1	b2	b3	c1	c2	c3	d1	d2
1	• Introduction	x							x	x	x		
2	• Acute kidney injury	x			x	x	x	x	x	x	x	x	x
3	• Chronic kidney diseases	x			x	x	x	x	x	x	x	x	x
4	• Introduction to infectious diseases	x	x			x	x	x	x	x	x	x	x
5	• Respiratory tract infections		x	x		x	x	x	x	x	x	x	x
6	• Urinary tract infections			x	x	x	x	x	x	x	x	x	x
7	• Case study	x	x	x	x	x	x	x	x	x	x	x	x

Course co-ordinator: Dr . Ahmed Amin

Date : / 7 /2017 تم اعتماد التوصيف

Nutrition and Anemia

Course specification of Nutrition and Anemia

A- Course specifications:

- Program on which the course is given: Diploma in clinical pharmacy
- Major or Minor element of program: Major
- Department offering the program: -
- Department offering the course: Biochemistry
- Date of specification approval: 2017/9/ 26

1- Basic information:

Title: Nutrition and Anemia
Code: D1007
Lectures : 1 hr/week Practical: 2 hr/week Tutorials: ---
Total: 2 credit hrs/week

2- Overall aim of the course:

On completion of the course, the students will be able to explain the importance of healthy nutrition and the pathophysiology and management of different types of anemia.

3. Intended learningoutcomes (ILOs):

Knowledge and Understanding	
a1	Outline the principles of healthy nutrition and types of nutrients.
a2	Illustrate the body energetics and requirements of macronutrients and iron.
a3	Demonstrate the etiology and clinical features of different types of anemia and iron overload.
a 4	Discuss the principles of diet therapy and management of different types of anemia and iron overload.
Professional and Practical skills	
b1	Specify therapeutic and dietary interventions of anemia and iron overload.
b2	Perform laboratory tests for diagnosis of different diseases.
b3	Advise patients about balanced diet to promote the quality of life and the efficiency of medication.
Intellectual skills	
c1	Suggest life style modifications to prevent anemia and iron overload
c2	Select the appropriate drugs and dietary regimens for anemia and iron overload
General and Transferable Skills	
d1	Develop communications skills with public, patients and other health care professionals.
d2	Work effectively as a member of a team.
d3	Practice independent learning needed for continuous professional development.
d4	Write and present reports.
d5	Implement critical thinking and decision making skills.

4. Course Content:

Week No.	Lecture (1hr/week)	Practical session (2hr/week)
1	• Principles of healthy Nutrition	• Healthy nutrition
2	• Components of energy expenditure	• Basal metabolic rate and energy expenditure
3	• Macronutrients (carbohydrates, lipids and proteins)	• Food pyramids • Case study
4	• Micronutrients: Vitamins	• Case study
5	• Micronutrients : Minerals	• Case study
6	• Activity-1	• Activity-1
7	• Anemia and its different types	• Activity-1
8	• Iron deficiency anemia (definition, causes, symptoms and diagnosis). • Dietary sources of iron	• Assessment of iron deficiency anemia • Case study-1 • Serum Iron • Ferritin and transferritin
9	• Hematochromatosis symptoms and management of iron overload	• Assessment of hematochromatosis • Case study - 2
10	• Megaloblastic anemia causes and dietary management	• Assessment of Megaloblastic anemia • Case study - 2
11	• Activity-2	• Activity-2
12	• Revision and open discussion	• Revision

5- Teaching and Learning Methods:

- Lectures
- Practical sessions
- Self learning (Activity, group discussion and presentations)

6- Student Assessment methods:

Written exams to assess: a1, a2, a3, a4, b1, b2, b3, c1 and c2

Practical exam to assess: a1, a2, a3, a4, b1, b2 and b3

Oral exam to assess: a1, a2, a3, a4, b1, b2 and b3

Activity to assess: d1, d2, d3, d4 and d5

Assessment schedule:

Assessment (1): Activity	Week 6 and 11
Assessment (2): Practical exam	Week 13
Assessment (3): Written exam	Week 16
Assessment (4): oral exam	Week 16

Weighting of Assessment:

Assessment method	Marks	Percentage
• Written exam	50	50 %
• Practical exam	30	30 %
• Oral exam	20	20 %
TOTAL	**100**	**100%**

7- References and books:

A-Scientific papers:

Impact of a clinical pharmacy anemia management service on adherence to monitoring guidelines, clinical outcomes, and medication

utilization. Jenny M. Debenito, Sarah J. Billups, Thu S. Tran, and Lea C. Price. J Manag Care Pharm. 2014; 20(7):715-720.

B- Essential books:

D.J. Weatherall and Chris Hatton. Anaemia: pathophysiology, classification, and clinical features. In: **Oxford Textbook of Medicine.** Edited by David A. Warrell, Timothy M. Cox, and John D. Firth. 2013. Oxford University press (last updated September 2016), Oxford, UK.

C- Suggested books:

Rudy Silva Silva. Anemia: Iron Deficiency Diet: Large Print: Quick and Easy Diet Cures For Anemia, 2014. Barnes & Noble Booksellers, Inc.122 Fifth Avenue, New York, NY 10011.

Ralph Catalase. Living Well With Hemochromatosis: A Handbook on Diet, Iron Overload Treatments and Protective Supplements. Top shape Publishing LLC, 2013. Reno, Nevada 89502-2121, USA.

James C. Barton, Corwin Q. Edwards, Pradyumna D. Phatak, Robert S. Britton and Bruce R. Bacon. Handbook of Iron Overload Disorders. Cambridge University Press, 2010.Cambridge, UK.

D- Websites: pubmed, Science direct, Nejm, Weilyinterscience

Facilities required for teaching and learning:

For lectures: Black (white) boards, computer, data show.

- **Course Coordinators: Prof Dr. Sousou I Ali**
- **Head of Department: Prof Dr/ Sahar Elsewify**

تم اعتماد توصيف المقرر بمجلس قسم الكيمياء الحيوية بتاريخ 26 /9/ 2017

Matrix I of Nutrition and Anemia

	Course Contents	ILOs													
		Knowledge and Understanding				Professional and practical skills			Intellectual skills		General Transferable skills				
		a1	a2	a3	a4	b1	b2	b3	c1	c2	d1	d2	d3	d4	d5
1	• Principles of healthy Nutrition	x			x										
2	• Components of energy expenditure	x	x		x										
3	• Macronutrients (carbohydrates, lipids and proteins)	x	x		x					x					
4	• Micronutrients: Vitamins	x	x		x					x					
5	• Micronutrients : Minerals	x	x		x					x					
6	• Anemia and its different types			x	x				x						
7	• Iron deficiency anemia (definition, causes, symptoms and diagnosis). • Dietary sources of iron		x	x	x				x	x					

8	• Hematochromatosis symptoms and management of iron overload			x	x				x						
9	• Megaloblastic anemia causes and dietary management			x	x				x	x					
Practical:															
1	• Healthy nutrition	x			x	x	x	x							
2	• Basal metabolic rate and energy expenditure		x		x	x	x	x							
3	Food pyramids	x			x	x	x	x		x					
4	• Assessment of iron deficiency anemia • Serum Iron • Ferritin and transferritin			x	x	x	x	x							
5	• Assessment of hematochromatosis			x	x	x	x	x							
6	• Assessment of Megaloblastic anemia			x	x	x	x	x	x						
7	Case study	x	x	x	x				x	x	x	x	x	x	x
8	• Activity	x	x	x	x				x	x	x	x	x	x	x

- **Course Coordinators: Prof Dr. Sousou I Ali**
- **Head of Department: Prof Dr/ Sahar Elsewify**

تم اعتماد توصيف المقرر بمجلس قسم الكيمياء الحيوية بتاريخ 26 /9/ 2017

Clinical Pharmacokinetics

Course specification of Clinical Pharmacokinetics

A- Course specifications:

- Program on which the course is given: Diploma in clinical pharmacy
- Major or Minor element of program: Major
- Department offering the program: -
- Department offering the course: Pharmacy Practice
- Date of specification approval: October 2017

1- Basic information:

Title: Clinical Pharmacokinetics
Code: D1009
Lectures: 2 hrs/week Practical : 0
Total: 2hrs/week

2- Overall aim of the course:

On completion of the course, the student will be able to:

- Define basic pharmacokinetic concepts, including bioavailability, volume of distribution, clearance, half life and the elimination rate constant.
- Recognize the theoretical background of the pharmacokinetic behavior of drugs .
- Apply the above principles for pharmacokinetic decision making and improvement of patient care.
- Design dosing regimen for following medications based on patient characteristics in specific clinical scenario :
  - ✓ Antibiotics (Aminoglycosides, Vancomycin)
  - ✓ Cardiovascular Drugs (Lidocaine, Digoxin)
  - ✓ Respiratory drugs (Theophylline)
  - ✓ Anticonvulsant drugs (phenytoin, Phenobarbital)
  - ✓ Antipsychotic drugs (lithium)

3. Intended learning outcomes (ILOs):

Knowledge and Understanding	
a1	Define various terms related to basic pharmacokinetics, bioavailability and bioequivalence
a2	List clinical pharmacokinetic variabilities related to diseases
a3	List the equations used to calculate drug clearance, elimination rate constant, volume of distribution and half life
a4	Outline therapeutic ranges and pharmacokinetic parameters for commonly used drugs which need therapeutic drug monitoring .e.g. aminoglycoside antibiotics, lithium, theophylline, digoxin and others
Professional and practical skills	
b1	Perform proper therapeutic monitoring of drugs with narrow therapeutic index .e.g. aminoglycoside antibiotics, lithium, theophylline, digoxin and others
Intellectual skills	
c1	Investigate the effect of age and disease on pharmacokinetic of digoxin, aminoglycoside, phenytoin, and theophylline
c2	Calculate clearance, volume of distribution and half life time of of digoxin, aminoglycoside, phenytoin, and theophylline
c3	Calculate Loading and maintenance dose of drugs based on patients specific parameters
General and Transferable Skills	
d1	Develop problem solving and critical thinking skills
d2	Communicate results of work to others

4. Course Content:

Week number	Lecture contents (2hrs/week)
1	- Introduction to Clinical Pharmacokinetics & Course Objectives - Basic concepts: ➢ Linear & nonlinear pharmacokinetics ➢ Clearance ➢ Volume of distribution ➢ Bioavailability
2	Clinical pharmacokinetic equations and calculations
3	Drug dosing in special populations: renal and hepatic disease, Dialysis, heart failure, obesity and drug interactions
4	Tutorial
5	TDM of Aminoglycosides
6	TDM of Digoxin
7	Tutorial
8	TDM of Phenobarbital
9	TDM of Phenytoin
10	Tutorial
11	TDM of Lithium
12	TDM of Theophylline
13	Tutorial
14	Case study
15	Revision

5- Teaching and Learning Methods:

- Lectures
- Case discussion
- Problem solving
- cooperative learning

6- Student Assessment methods:

Written exam assess: a1, a2, a3,a4, b1, c1, c2, c3

Oral exam assess: a1, a2, a3,a4, c1, c2, c3

Activity assess: b1, d1, d2,

Assessment schedule:

Assessment (1): Activity	Week 4,9,13
Assessment (2): Written exam	Week 16
Assessment (3): oral exam	Week 16

Weighting of Assessment:

Assessment method	Marks	Percentage
Final written exam	80	80%
Oral exam	20	20%
TOTAL	100	100%

7- References and books:

List of References:

- Curtis L . Smith, Pharm.D, FCCP, BCPS. Pharmacokinetics: A Refresher. ACCP Updates in Therapeutics® 2017: Pharmacotherapy Preparatory Review and Recertification Course.
- Larry A. Bauer, PharmD, Applied Clinical Pharmacokinetics, 2nd edition, Copyright © 2008 by The McGraw-Hill Companies, Inc.
- Adam M. Persky, PhD, Copyright 2013 © Adam M. Persky.

Facilities required for teaching and learning:

- For lectures : Black (white) boards, data show, air conditioned classroom equipped with sound system

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Course Coordinator: Dr. Gehan Fathy Attia

Date: م / 9 / 2017 بتاريخ

Matrix I of Clinical Pharmacokinetics

	Course Contents	ILOs									
		Knowledge and Understanding				Professional and practical skills	Intellectual skills			General Transferable skills	
		a1	a2	a3	a4	b1	c1	c2	c3	d1	d2
1	- Basic concepts: ➢ Linear & nonlinear pharmacokinetics ➢ Clearance ➢ Volume of distribution • Bioavailability	x		x							x
2	• Clinical pharmacokinetic equations and calculations	x		x							x
3	• Drug dosing in special populations: renal and hepatic disease, Dialysis, heart failure, obesity and drug interactions		x	x					x	x	
4	• TDM of Aminoglycosides		x	x	x	x	x	x	x	x	x

5	• TDM of Digoxin		x	x	x	x	x	x	x	x	x	x
6	• TDM of Phenobarbital		x	x	x	x	x	x	x	x	x	x
7	• TDM of Phenytoin		x	x	x	x	x	x	x	x	x	x
8	• TDM of Lithium		x	x	x	x	x	x	x	x	x	x
9	• TDM of Theophylline		x	x	x	x	x	x	x	x	x	x

Course Coordinator: Dr. Gehan Fathy Attia

Date: بتاريخ 2017 / 9 / م

Hospital Microbiology

Course specification of
Hospital Microbiology

A- Course specifications:

- Program on which the course is given: Diploma in clinical pharmacy
- Major or Minor element of program: Major
- Department offering the program: -
- Department offering the course: Microbiology and Immunology
- Date of specification approval: November 2017

1- Basic information:

Title: Hospital Microbiology
Code: D1010
Lectures: 2 hr/week Practical:---

Total: 2 credit hrs/week

2- Overall aim of the course:

This course aims to ensure that the students are well prepared to direct the infection control services and to develop, implement and supervise infection control programs in different health care facilities. Moreover, this course will provide the students with the skills and knowledge that keep them alert to basic guidelines of infection control that make them able to work within the hospital team and in the integrated programs of quality management and accreditation.

3. Intended learning outcomes (ILOs):

Knowledge and Understanding	
a1	Identify basic concepts of infection control (IC), and guidelines for standard & general IC measures.
a2	Describe infection control aspects of occupational health and safety.
a3	Summarize surveillance strategies of HAIs and strategies for patient isolation and appropriate patient placement.
a4	Identify antimicrobial resistance and how to combat multi-drug resistant organisms.
a5	Describe infection control strategies for specific patient care settings and supporting services.
a6	Outline measures to reduce infection risks associated with therapeutic and diagnostic procedures and devices
Professional skills	
b1	Develop a written mission statement, objectives, and action plans for infection control program.
b2	Perform an infection-control oriented risk assessment for all procedures undertaken in the hospital
b3	Implement evidence based IC guidelines for specific patient care settings, risky procedures, and common HAIs.
b4	Participate in antimicrobial monitoring and evaluation and implement a MDR Organisms control program
Intellectual skills	
c1	Assess hazards of infection and risks of occupational exposure to infectious diseases
c2	Conduct IC awareness programs for patients and visitors
c3	Apply parameters for identification of HAIs
c4	Design screening programs for health care workers to investigate exposure to infectious diseases
c5	Recommend specific equipment, personnel, and resource for IC program
c6	Initiate patient isolation precautions when indicated
General and Transferable Skills	

d1	Communicate with other members of the multidisciplinary team and participate in quality improvement strategies.
d2	Acquire habits of reading, searching, consultation with colleagues, and presenting scientific works that are essential for professional development.

4. Course Content:

Week No.	Lecture (2hr/week)
1	Introduction to nosocomial infection and infection control
2	Standard and general infection control measures
3	Surveillance systems
4	Isolation precautions
5	Patient safety
6	Antimicrobial stewardship.
7	Infection control for specific patient care settings
8	Prevention of procedure/device related infections
9	Infection control guidelines for support services
10	Environment care infection control issues
11	Infection control strategies for multi-drug resistant organisms
12	Advanced occupational safety issues
13	Revision
14	Revision
15	Final exams

5- Teaching and Learning Methods:

- Lectures
- Case studies
- Open discussions

6- Student Assessment methods:

- Written Exams
- Oral Exams

Assessment schedule:

Assessment (1): Written exam	Week 15
Assessment (2): Oral exam	Week 15

Weighting of Assessment:

Assessment method	Marks	Percentage
Written exam	80	80 %
Oral exam	20	20%
TOTAL	**100**	**100%**

7- References and books:

1. Siegel JD, Rhinehart E, Jackson M et al (Healthcare Infection Control Practices Advisory Committee), (2007) *Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings.* United States Centers for Disease Control and Prevention
2. Sehulster LM & Chinn RYW (2003*) Guidelines for Environmental Infection Control in Health-care Facilities.* Recommendations of the CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC). Chicago IL: American Society for Healthcare Engineering/American Hospital Association.
3. RACGP (2006) *Infection Control Standards for Office Based Practices* (4th edition)
4. Australian Dental Association (2008) *Guidelines for Infection Control*.

Facilities required for teaching and learning:

1. **For lectures:** Black (white) boards, data show.

- **Course Coordinator: Prof. Nehal Youssef**
- **Head of Department: Prof. Nehal Youssef**
- **Date: 27/11/2017** **تم مناقشة و اعتماد توصيف المقرر بمجلس قسم الميكروبيولوجي بتاريخ**

Matrix I of Hospital Microbiology

	Course Contents	ILOs																	
		Knowledge and Understanding						Professional and practical skills				Intellectual skills						General Transferable skills	
		a1	a2	a3	a4	a5	a6	b1	b2	b3	b4	c1	c2	c3	c4	c5	c6	d1	d2
1	• Introduction to nosocomial infection and infection control	x																	
2	• Standard and general infection control measures	x	x					x	x							x		x	x
3	• Surveillance systems			x				x	x							x		x	x
4	• Isolation precautions			x				x			x						x	x	x
5	• Patient safety				x	x	x	x			x		x	x			x	x	x
6	• Antimicrobial stewardship.				x			x			x		x					x	x
7	• Infection control for specific patient care settings					x		x		x			x	x		x		x	x
8	• Prevention of procedure/device related infections						x	x		x			x		x	x		x	x
9	• Infection control guidelines for support services						x	x		x			x		x	x		x	x

10	• Environment care infection control issues	x	x					x					x		x	x		x	x
11	• Infection control strategies for multi-drug resistant organisms				x			x			x			x				x	x
12	Advanced occupational safety issues		x					x				x	x		x			x	x

- **Course Coordinator: Prof. Nehal Youssef**
- **Head of Department: Prof. Nehal Youssef**

Date: 27/11/2017 تم مناقشة و اعتماد توصيف المقرر بمجلس قسم الميكروبيولوجي بتاريخ

Hospital Pharmacy

Course specification of Hospital Pharmacy

Course specifications:

- **Program on which the course is given:** Clinical Pharmacy Diploma
- **Major or Minor element of program:** Major
- **Department offering the program:** -
- **Department offering the course:** Pharmacy practice Dept.
- **Date of specification approval:** 2017-2018

1- Basic information:

Title: **Hospital Pharmacy** Code: D1011

Credit hours: 2 hrs/week

Total: 2 hrs lectures /week

2- Overall aim of the course:

On completion of the course, the students will be able to:

✓ Describe the healthcare functions of private and public facilities, inpatient and outpatient services, military facilities, and volunteer facilities as well as different pharmaceutical services in hospital pharmacy

✓ Describe hospital formulary, Pharmacy & therapeutic committee, pharmacist-patient care process and medication distribution systems

✓ Identify different drug related problems and medication errors

✓ Describe good dispensing practices of different classes of medications including controlled drugs, sterile preparations, hazardous products, biopharmaceuticals and vaccines

3- Intended learning outcome s (ILO's):

Knowledge and Understanding	
a1	outline different types of health facilities, duties of hospital pharmacist as well as hospital pharmacy services
a2	Describe medication management and distribution systems
a3	Enumerate guidelines for proper handling of special classes of medicines including narcotics, vaccines, biopharmaceuticals and hazardous compounds
a4	Describe several pharmacy automated dispensing technologies such as carousel, pneumatic tube, barcode and others
a5	List different drug related problems and medication errors
Professional and practical skills	
b1	Conduct counselling sessions with patients or other healthcare professionals effectively
b2	Apply different strategies to minimize medication errors and drug related problems
Intellectual skills	
c1	Differentiate between good and bad practices for dispensing of different pharmaceuticals including controlled drugs, vaccines, biopharmaceuticals and hazardous compounds
c2	Analyze common hazardous situations contributing to medication errors and drug related problems
c3	Differentiate between different medication distribution systems within hospitals
General and Transferable skills	

d1	Use information technology to collect and present data
d2	Work effectively as a member of a team
d3	Communicate effectively both verbally and nonverbally

4. Course Content:

Week	Lecture content (2 hr/w)
1st	Introduction to hospital pharmacy
2nd	Job description of clinical pharmacist
3rd	Medication management
4th	Medication distribution systems
5th	Dispensing of controlled drugs
6th	Pharmacist-patient care process
7th	Drug related problems
8th	Medication errors
9th	Use of technology
10th	Patient counselling
11th	Dispensing of special classes of medications
12th	Dispensing of special classes of medications
13th	Tutorial
14th	Tutorial
15th	Final written exams

5- Teaching and Learning Methods:

- Lectures
- Open discussion
- Case study

6- Student Assessment methods:

Written exam to assess: a1, a2, a3, a4, a5, b1, b2, c1, c2, c3

Oral exam to assess: a1, a2, a3, a4,a5, b1, b2, c1, c2, c3

Course activities to assess: d1, d2, d3

Assessment schedule:

Assessment (1): Written exam	Week 15
Assessment (2): oral exam	Week 15

Weighting of Assessment:

Assessment method	Marks	Percentage
• Written exam	80	80 %
• Oral exam	20	20%
TOTAL	**100**	**100%**

7- References and books:

A-Scientific Papers

P. Elsinga, S. Todde, I. Penuelas, G. Meyer, B. Farstad, et al. Guidance on current good radiopharmacy practice (cGRPP) for the small-scale preparation of radiopharmaceuticals. Eur J Nucl Med Mol Imaging, 20 March, 2010

Ruths S, Viktil KK, Blix HS. Classification of drug-related problems. Tidsskr Nor Lægeforen 2007; 127: 3073–6

B- Essential books:

1. Harvey M. Rappaport et al. The Guidebook for Patient Counselling. Lancaster, Pennsylvania: Technomic Publishing Company, 1994.

2. Tindall, William N, Robert S. Beardsley, Carole L. Kimberlin. Communication Skills in Pharmacy Practice (fourth edition). Baltimore, Maryland and Philadelphia, Pennsylvania : Lippincott Williams & Wilkins, 2003.

3. ASHP Guidelines on Pharmacist-Conducted Patient Education and Counseling. Medication Therapy and Patient Care: Organization and Delivery of Services–Guidelines, 310 – 312 (2011).

C- Suggested books:

Egyptian Clinical Pharmacy Standards of Practice, Egyptian Drug Authority, Ministry of Health

Facilities required for teaching and learning:

For lectures: Black (white) boards, data show

Course Coordinators: Assis Prof. Gehan F. Balata

Matrix I of Hospital Pharmacy

	Course Contents	ILOs												
		Knowledge and Understanding					Professional and practical skills		Intellectual skills			General Transferable skills		
		a1	a2	a3	a4	a5	b1	b2	c1	c2	c3	d1	d2	d3
1	• Introduction to hospital pharmacy	x												
2	• Job description of clinical pharmacist	x					x					x	x	x
3	• Medication management		x									x	x	x
4	• Medication distribution systems		x						x	x	x	x	x	x
5	• Dispensing of controlled drugs			x			x		x			x	x	x
6	• Pharmacist-patient care process	x		x			x					x	x	x
7	• Drug related problems			x		x	x	x	x	x		x	x	x
8	• Medication errors			x		x	x	x	x	x		x	x	x

9	• Use of technology				x							x	x	x
10	• Patient counselling	x		x			x					x	x	x
11	• Dispensing of special classes of medications			x			x	x	x	x		x	x	x

Course Coordinators: Assis Prof. Gehan F. Balata